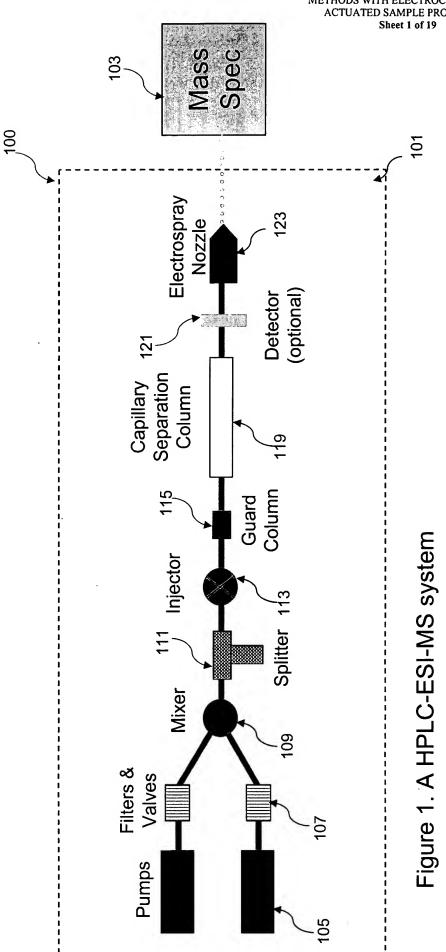
Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 1 of 19



Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 2 of 19

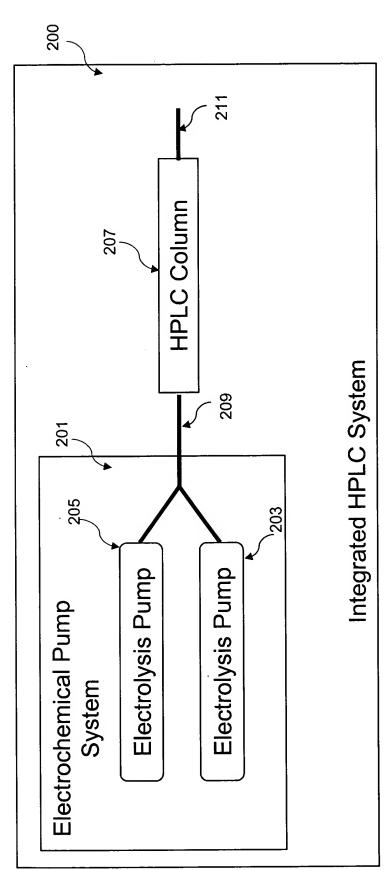
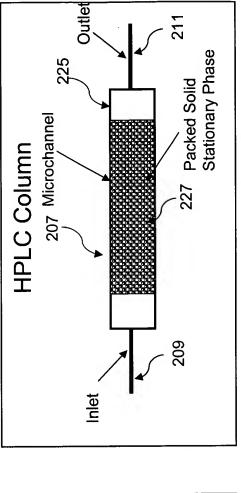
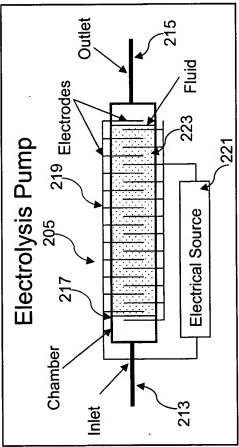
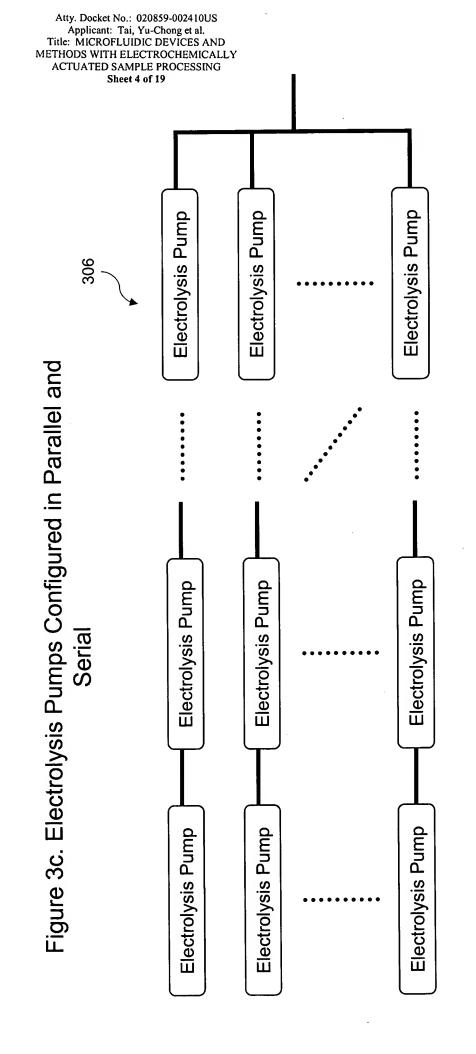


Figure 2. Integrated Microfluidic HPLC System





Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING Sheet 3 of 19 **Electrolysis Pump** 301 303 **Electrolysis Pump Electrolysis Pump Electrolysis Pump Electrolysis Pump** Figure 3b. Electrolysis Pumps Configured in Serial Figure 3a. Electrolysis Pumps Configured in Parallel **Electrolysis Pump**



Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 5 of 19

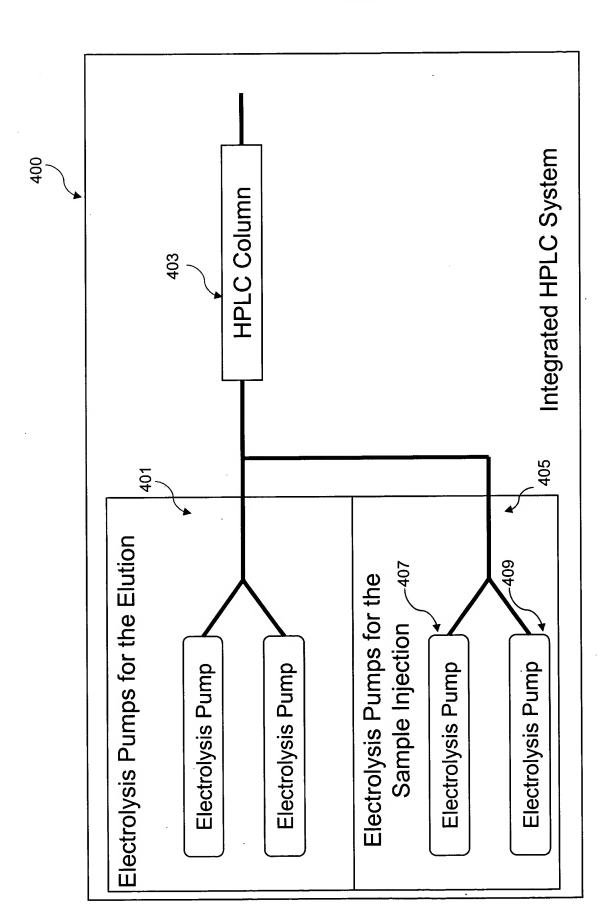
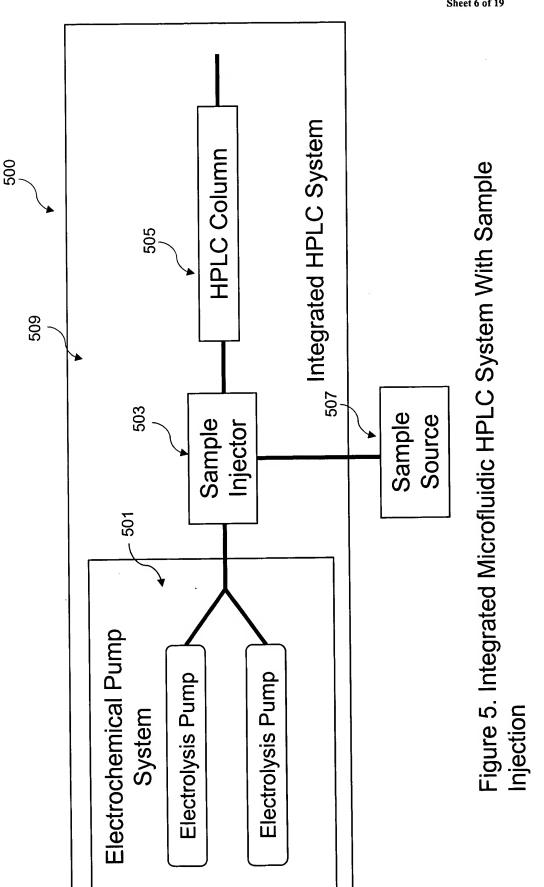


Figure 4. Integrated Microfluidic HPLC System With Sample Injection

Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 6 of 19



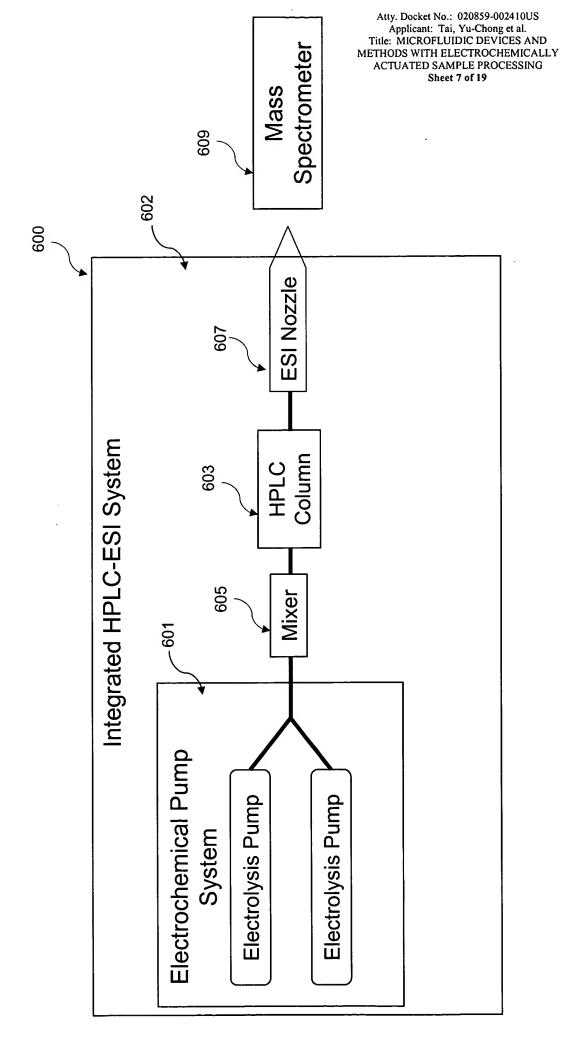


Figure 6. Integrated HPLC-ESI-MS System

Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 8 of 19

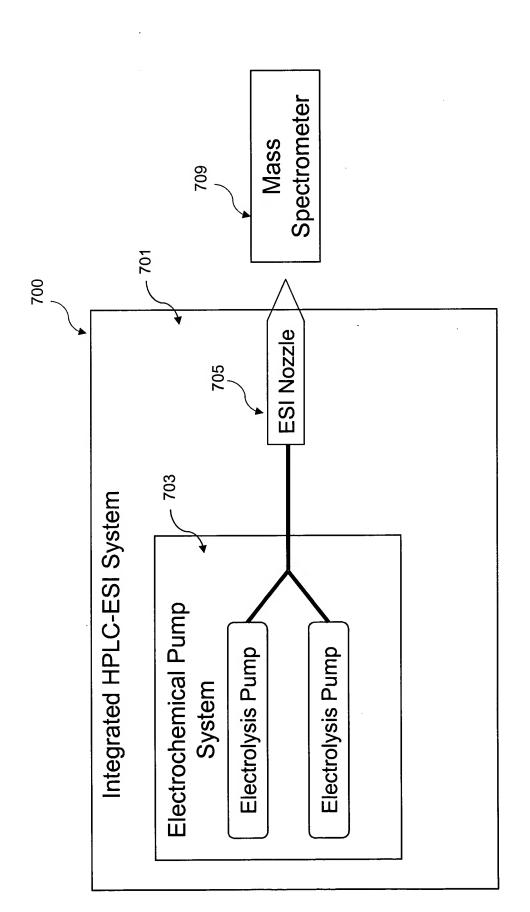


Figure 7. Integrated ESI-MS System

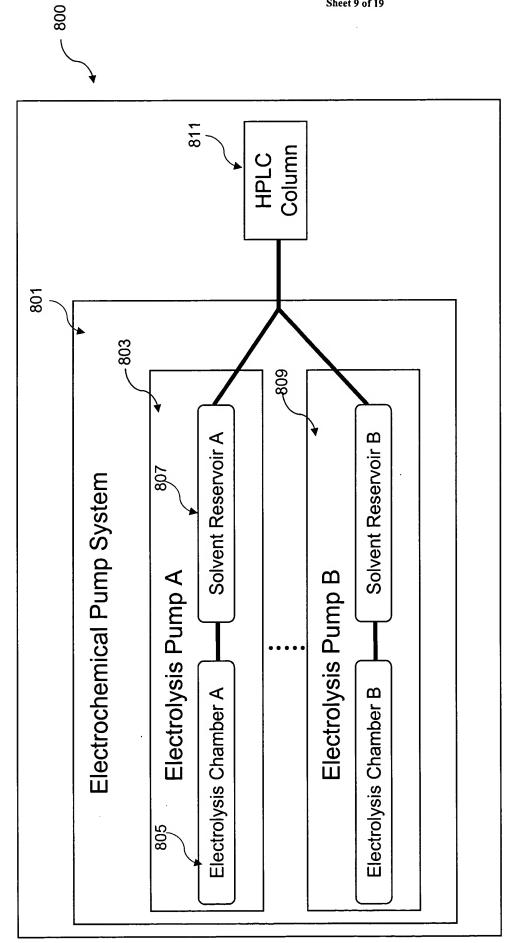


Figure 8. A HPLC system with a multi-chamber arrangement for electrolysis pump.

Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 10 of 19

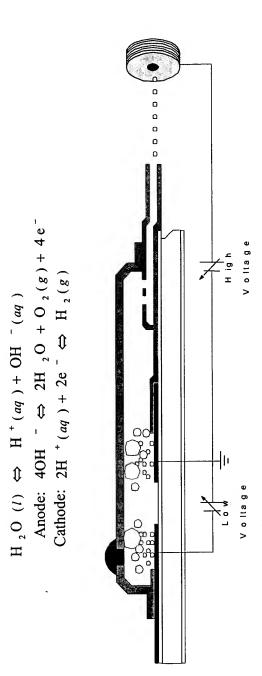


Figure 9

Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 11 of 19

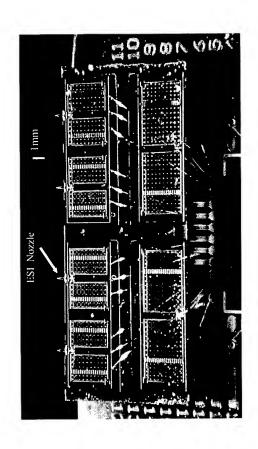
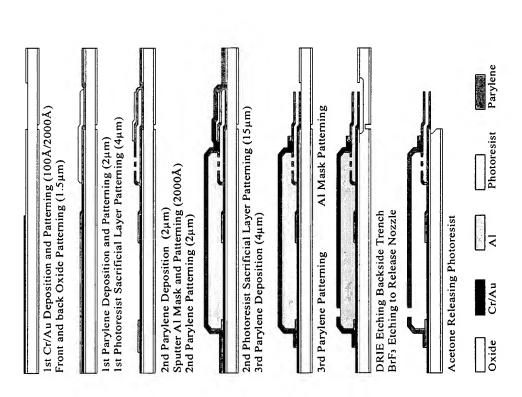


Figure 10.





Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 13 of 19

Figure 12.

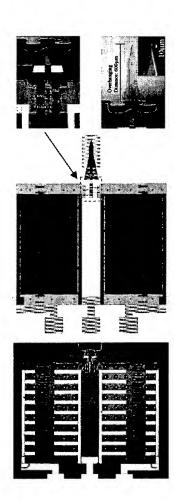
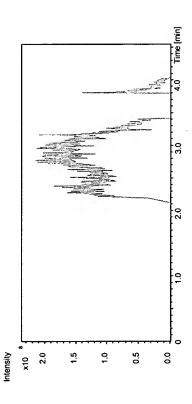
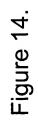


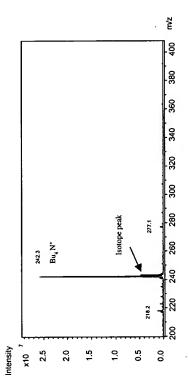
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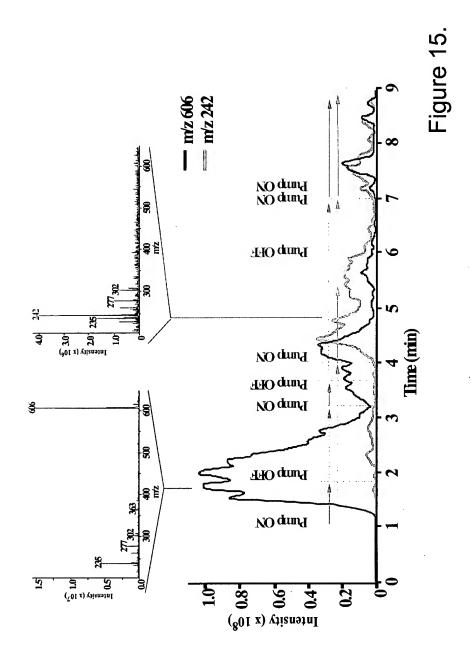


Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING

Sheet 14 of 19



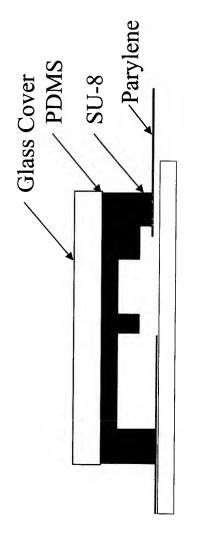


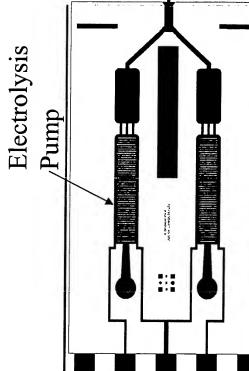


Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 17 of 19 Atty. Docket No.: 020859-002410US

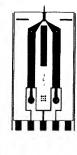
Figure 16

2 cm





Nozzle



Fabricated Device Picture

Specifications:

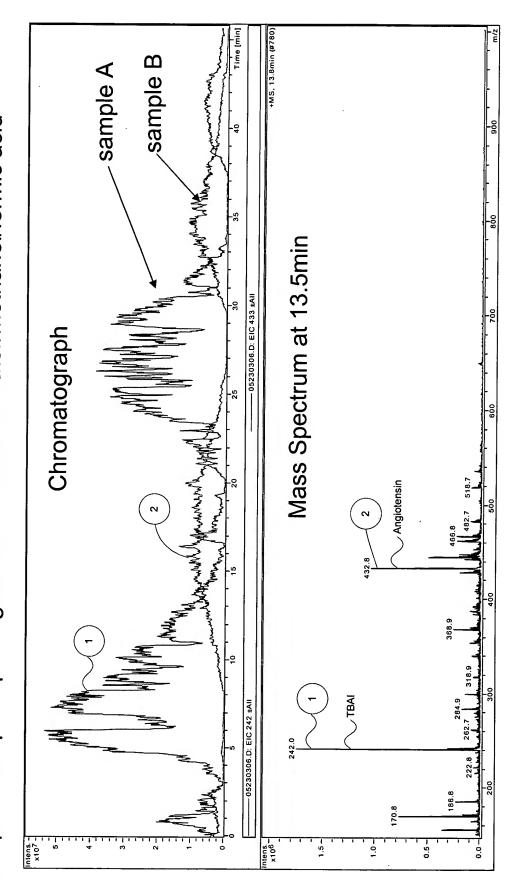
Volume: 2+1=3 μL Flow Rate: 100 nL/min

Pressure: 100 psi

Time: 20 min

Figure 17

sample A: 10 pmol/µL TBAI in 90/10/0.1 water/acetonitrile/formic acid sample B: 25 pmol/µL Angiotensin in 95/5/0.2 water/methanol/formic acid chip#4 Electrolysis chip test (chip#2 reused)



Atty. Docket No.: 020859-002410US
Applicant: Tai, Yu-Chong et al.
Title: MICROFLUIDIC DEVICES AND
METHODS WITH ELECTROCHEMICALLY
ACTUATED SAMPLE PROCESSING
Sheet 19 of 19

Figure 18

